DOCUMENT RESUME

ED 337 928 EC 300 670

AUTHOR Paul, Peter V.
TITLE Use of ASL To Teach Reading and Writing to Deaf Students: An Interactive Theoretical Perspective.
PUB DATE Jul 90
NOTE 38p.; Based on a presentation at the "Bilingual Considerations in the Education of Deaf Students: ASL and English" Conference (Las Vegas, NV, June 28-July 1, 1990).
PUB TYPE Speeches/Conference Papers (150) -- Information Analyses (070) -- Guides - Classroom Use - Teaching Guides (For Teacher) (052)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *American Sign Language; Bilingual Education; *Deafness; Elementary Secondary Education; *English (Second Language); Immersion Programs; *Literacy Education; Reading Comprehension; *Reading Instruction; Reading Processes; *Second Language Learning; Teaching Methods; Writing (Composition); Writing Instruction

ABSTRACT

This paper discusses the use of American Sign Language (ASL) in an English-as-a-Second-Language approach to teaching reading and writing skills to deaf students. The paper poses and answers the following theoretical and practical questions: (1) What is the nature of first language reading? (2) What is the nature of second language reading? (3) What is the relationship between reading and writing? (4) Is inner speech (i.e., phonological coding) important for reading comprehension? (5) What role can ASL play in the teaching of literacy skills? (6) Is the use of only ASL sufficient for the development of reading and writing? Three models of the reading process, namely, the text-based, reader-based, and interactive approaches, are described. Interactive social-cognitive theories are then applied to second language reading. The interrelatedness of reading and writing is noted, and evidence of the importance of speech coding for reading comprehension is cited. The paper recommends that ASL be used to teach English literacy skills within the framework of a bilingual minority-language immersion program. ASL's use in teaching cultural components, emerging literacy skills, advanced literacy skills, vocabulary, and comprehension is examined in detail. (48 references) (JDD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED337928

Use of ASL to Teach Reading and Writing to Deaf Students: An Interactive Theoretical Perspective

Peter V. Paul

Department of Educational Services and Research

The Ohio State University

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

ADDRESS FOR CORRESPONDENCE:

Peter V. Paul, Ph.D.

Associate Professor

The Ohio State University

Educational Services and Research

356 Arps Hall

1945 N. High Street

Columbus, OH 43210

Note: This paper is based on a presentation at a conference sponsored by Gallaudet University, Extension and Summer Programs, "Bilingual Considerations in the Education of Deaf Students: ASL and English," Las Vegas, Nevada, June 28 to July 1, 1990.

Running Head: Use of ASL

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Peter V. Paul

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

EC300670

BEST COPY AVAILABLE

Use of ASL to Teach Reading and Writing to Deaf Students: An Interactive Theoretical Perspective

For at least 20 years, a number of scholars concerned with deafness have argued for the establishment of bilingual or English-as-a-second-language (ESL) education programs, particularly those that focus on the use of American Sign Language (ASL) and English (Cicourel & Boese, 1972a, 1972b; Johnson, Liddell, & Erting, 1989; Luetke-Stahlman, 1983; Paul, 1987; Paul & Gramly, 1986; Quigley & Paul, 1984; Reagan, 1985; Stokoe, 1975; Strong, 1988). Three major assertions have been made in reference to many deaf (i.e., severely to profoundly hearing-impaired) students: 1) ASL is or should be developed as their first language, 2) ASL can be used to teach educational subjects such as science, social studies, and mathematics, and 3) ASL can be used to teach English as a second language, that is, to teach reading and writing skills. This paper addresses all three assertions; however, the major focus is on the third one, the teaching of literacy skills.

A few theoretical and practical questions are posed and answered:

1. What is the nature of first language reading?
2. What is the nature of second language reading?
3. What is the relationship between reading and writing?
4. Is inner speech (i.e., phonological coding) important for reading comprehension?

5. What role can ASL play in the teaching of literacy skills?

6. Is the use of only ASL sufficient for the development of reading and writing?

The first four questions concern the nature of the literacy process. What is known about this process, by both first- and second-language users, should guide the establishment of any instructional program that intends to improve students' skills in reading and writing. Indeed, the answers to the last two questions concerning ASL are dependent on our understanding of the literacy process.

It should be remembered that most of the information in this paper pertains to deaf students reared in homes that use some form of ASL, English, or both. The information can be generalized to children from non-English speaking/signing homes; however, consideration also needs to be given to the socio-political culture associated with the respective home language. As is discussed later, not only is reading a cognitive process, but also it is a social process. For example, (Bernhardt, in press): "... analyses of classrooms in which minority children must participate reflect that the content or social background from which the learner emerge influences his acquisition of literacy skills" (p. xx).

What is the Nature of First Language Reading?

Without running the risk of oversimplification, most current models of the reading process can be categorized into three broad areas: text-based, reader-based, and interactive

(Rayner & Pollatsek, 1989; Samuels & Kamil, 1984). These three general models form the basis for reading instructional and curricular approaches. Text-based models generate approaches that are labeled bottom-up. Reader-based models generate top-down approaches. Interactive approaches are influenced by interactive parallel processing models.

Bottom-Up Models

In the bottom-up approaches, reading is said to begin with the decoding of words and eventually to end with meaning in the reader's head. A great deal of emphasis is placed on letter identification, letter clusters, and grapheme-sound correspondences. It is argued that readers must connect the sounds in order to produce words and sentences. That is, readers must match the graphemes of print with the corresponding phonemes of spoken language to arrive at an understanding of the text.

In short, bottom-up theorists assert that processing is very fast. The basic idea is that printed symbols are taken from the page and transformed with little influence from general world knowledge, contextual information, or higher order processing strategies. Despite the shortcomings of linear bottom-up models, they have demonstrated the importance of inner speech (i.e., phonological coding) in reading comprehension and have shown that context plays a very minor role in lexical access in highly literate readers.

Top-Down Models

Proponents of top-down approaches argue that the most important part of the reading process is the wealth of information that readers bring to the text. In other words, reading begins with what is in the reader's head, not with what is on the printed page. It is assumed that readers use their prior or world knowledge to figure out letters and words. Reading is not viewed as a precise process in which fixation must occur on every letter of every word, but rather, as a process that is similar to spoken language comprehension. In one prominent top-down model, reading is called a psycholinguistic guessing game in which readers make more accurate guesses or predictions about meaning based on a sample of the text (Goodman, 1985). The more knowledge readers have about grammar and the more world experiences they have had, the less time they spend focusing on letter-sound correspondences, and this in turn increases their skill and speed in reading. As stated by Samuels and Kamil (1984): this ... "model always prefer the cognitive economy of reliance on well-developed linguistic (syntactic and semantic) rather than graphic information" (p. 187; emphasis added). In addition, it appears that this top-down model "has had the greatest impact on conceptions about reading instruction, particularly early instruction. So strong has been this impact that it is not uncommon to hear or read about THE psycholinguistic approach to reading or THE whole language approach to reading"

(p. 187). Despite the shortcomings of linear top-down models, they have shown that reading is sometimes a predictive process and that an adequate knowledge of the world and, specifically, the language in which one is trying to read are important prior to beginning reading.

Interactive Models

Interactive theorists assert that good readers integrate information from the text with their own knowledge to construct meaning (Anderson & Pearson, 1984; Grabe, 1988). Reading is a constructive process in which readers make meaning by interacting with the text. This is an active, complex process that requires the development and coordination of both bottom-up and top-down skills and occurs at many different levels of analysis such as lexical, syntactic, schematic, planning, and interpretative.

Both the words in the text and the reader's knowledge have critical roles. As stated by Durkin (1989):

> This leads to a comparison of external texts (words on the page) and internal texts (words on the page plus inferences). The comparison serves to show why an author's words are said to be merely a blueprint for the message that is eventually constructed by the builder, that is, by the successful reader. The significance of the blueprint itself is not minimized ... the constructed passage is always constrained by an author's words. The importance of those words is the reason ....to use whole

> word methodology to develop reading vocabularies, ... to teach about the cueing system of written English so students can deal independently with words that are visually unfamiliar, and ... to extend the number of words whose meanings students know. (p. 363)

To obtain a better understanding of the interactive process, consider the following text (Collins, Brown, & Larkin, 1980):

> He plunked down $5 at the window. She tried to give him $2.50, but he refused to take it. So when they got inside she bought him a large bag of popcorn. (p. 387)

Processing at a rapid pace, most readers think, after the first sentence, that this scene occurs at a racetrack, a movie, or a bank. Both bottom-up (text-based) and top-down (reader-based) processing lead to this supposition. Bottom-up processing is responsible for the following statements:

> The plunking down of $5 is interpreted as <u>giving</u> or <u>buying</u>. The word <u>window</u> suggests those that can be found in a house, a car, a bank, or a ticket office.

At the same time, there are other interpretations competing for attention. Top-down processing suggests:

> People do not plunk down $5 at a house or car window. They might deposit money at a bank window, pay for a ticket at a movie window, or place a bet at a racetrack window.

These tentative hypotheses are entertained and compete with

others until the situation is resolved on reading the two remaining sentences (Mason & CSR, 1984).

Unlike the two linear models discussed previously, interactive models assert that information contained in a higher stage influences the processing of a lower stage and vice versa. Most of the interactive models include notions of rapid and accurate letter and word recognition, that is, automatic processing "that does not depend on active attentional context for primary recognition of linguistic units" (Grabe, 1988, p. 59). In fact, good readers recognize lexical forms at a processing rate that is faster than the time it takes to use context and predicting cues (Rayner & Pollatsek, 1989).

It should be emphasized that good readers are not good because they are better predictors or make better use of context than poor readers. Consider the following paragraphs (van Dijk & Kintsch, 1983):

> The full complex nature of the interaction between these top-down and bottom-up processes becomes apparent if one looks at the contrast between good and poor readers in these terms. What exactly distinguishes a good reader from a poor reader?
>
> The greatest facilitation of word recognition by meaningful context is observed with poor readers, not with good readers. Furthermore, it is simply not true that good readers take decoding lightly; they fixate almost

> every content word...the best discriminator between good and poor readers is performance on simple letter and word identification tasks. What is really wrong with poor readers is that they recognize isolated words inaccurately and too slowly, and compensate for their lack in decoding skills with context-dependent guessing or hypothesis testing...Good readers with their superior decoding skills can decode letters and words rapidly in a bottom-up fashion, and therefore do not normally need to resort to guessing strategies...What is really at issue are the speed and accuracy of context-free word recognition operations. (pp. 23-24)

Because of their explanatory power, interactive theories have had a profound effect on reading research and instructional practices. Linear models that flow in one direction only, that is, bottom-up or top-down, are considered inadequate and can lead to poor instructional practices. Interactive models offer a balanced perspective. In sum, these models assert (Duffy, Roehler, & Mason, 1984, pp. 5-6):

1. The mature reader derives information more or less simultaneously from many levels of analysis including the graphophonemic, morphemic, semantic, syntactic, pragmatic, schematic, and interpretative.
2. Reading is an interactive process; analysis does not proceed in a strict order from basic perceptual units to the overall interpretations of a text, but hypotheses at any level may facilitate or inhibit hypotheses at any other level.

3. Reading is a constructive process. A text does not "have" a meaning by virtue of its wording and syntax; rather, the text is an abbreviated recipe from which the reader elaborates a meaning based on analysis of the author's intentions, the physical and social context, and the reader's knowledge of the topic and the genre.

4. Reading is a strategic process. Skillful readers continuously monitor their comprehension; they are alert to breakdowns and selectively allocate attention to difficult sections as they progressively refine their interpretation of the text.

What is the Nature of Second Language Reading?

In the field of deafness, there seems to be some confusion about what constitute bilingualism and second language learning (Quigley & Paul, 1990). This is an extremely complex issue and the discussion here attempts to clarify what is meant by second language reading for hearing-impaired children within the framework of this paper.

Second language refers to any language that is acquired after a first language (i.e., native or home language) is reasonably established (Bernhardt, in press; McLaughlin, 1982). It is also the spoken and written language of wider communication reflecting the knowledge, values, behaviors, and norms of the majority socio-political culture of society. Although the cultures of two languages, minority and majority,

within the same country may have some overlapping features, they do not share similar socio-political backgrounds (Bernhardt, in press). That is, each culture with its respective language has its own separate identity, or an unique set of cultural norms and values.

It can be inferred from the discussion above that English is a second language for hearing-impaired students with minority-language home environments such as Spanish, German, and American Sign Language. English is still a first language for hearing-impaired students from English-speaking homes who come to school with minimal or limited competency in the primary form, that is, speaking and/or signing. Many, if not most, hearing-impaired students from both groups have limited or no access to the majority language and culture of this society. In addition, many students from minority-language homes may have limited access to their own native language and/or culture. As is discussed later, ASL may be used with minority-language students or those who have limited proficiency in English. However, a successful reading/writing program takes into consideration the socio-political culture of the respective home environment of the students.

Reading as a social process means that a complete understanding of texts is dependent on the social-political contexts of writers and readers (Bloom & Green, 1984). That is, texts are manifestations of the interactions between

cultural values, beliefs, attitudes, and the social-political histories of writers and readers. For example, the social viewpoint accounts for the multiple interpretations of texts such as Animal Farm and Gulliver's Travels. Knowledge of the culture should be part of the prior or world knowledge that readers bring to the text, which, as discussed previously, acts as a blueprint and constrains readers' interpretations.

Interactive Theories and Second Language Reading

In the last 10 years, the predominant theory in English-as-a-second-language (ESL) reading has shifted from a text-based, or bottom-up, model to an interactive social-cognitive model (Bernhardt, in press; Grabe, 1988). The top-down model, particularly the psycholinguistic model (Goodman, 1985), has engendered extensive research on how conceptual knowledge, inference, and background information all affect the reading process in ESL reading (Carrell, 1983, 1984a, 1984b). However, a number of problems are not addressed by the psycholinguistic model. For example, the model does not explain how and to what degree good second language readers use lower-level processing strategies, and how these lower-level skills interact with higher-level (top-down) strategies (Grabe, 1988).

The following is a list of standard constraints that are associated with typical second language learners (Grabe, 1988, p. 57-58):

1. They may or may not read in their first language;

there is, in fact, surprisingly little current information on how, why, and what students read in other cultures.

2. If second language students do have literacy training, we still do not know how they approach reading in their first language as a social phenomenon; that is, do they view reading as a major academic, professional, and entertainment activity, or do they read much less, for far fewer purposes?
3. Second language readers are often assumed to transfer readily their first language reading abilities to the second language context; however, there is no adequate empirical evidence for assuming such a strong position.
4. Second language students coming from different orthographic traditions do appear to be affected by differing orthographic conventions, depending on their stage of reading skills acquisition.
5. Second language readers do not begin reading English with the same English language knowledge available to English-speaking children.

Along with knowledge of the socio-political culture of the majority language, point number 5 clearly separates first and second language reading students. In addition, this point pertains to many members of both groups of hearing-impaired students described previously. That is, second language

readers and many hearing-impaired students do not have a large vocabulary or command of basic syntactic structures (for second language readers, see Berman, 1984 and Cohen et al., 1979; for hearing-impaired students, see King & Quigley, 1985 and Quigley and Paul, 1990). Similar to first language learners, second language learners experience two major kinds of difficulties: overreliance on text-based processing and overreliance on reader-based processing such as extensive guessing or use of context. In essence, interactive theories have also explained the reading process in a second language.

What is the Relationship Between Reading and Writing?

An adequate discussion of the relationship between reading and writing is beyond the scope of this paper. There is some evidence that reading and writing are interrelated and share similar underlying processes (Rubin & Hansen, 1986; Tierney & Leys, 1984; Tierney & Pearson, 1983). When students read, they often engage in writing and vice versa. Good writers are often good readers; however, writing involve more than reading because good readers are not always good writers.

Reading, like writing, is composition (Pearson, 1984; Tierney & Pearson, 1983). The writing process may also be understood within an interactive theoretical framework. Both writing and reading involve interactions between the student and the text in which the student is trying to construct meaning. Readers construct meaning from texts in existence; writers construct meaning by producing texts.

Writing develops as a result of, and in conjunction with, reading. It is a good practice to include writing in beginning reading activities. For example, writing can help develop and reinforce knowledge of spelling and spelling-sound patterns. In addition, independent writing activities help children to develop a deeper understanding of the nature of text and its comprehension (Adams, 1990). There is no question that good writers have higher-level thinking skills such as organization and intent. Equally as important, however, is the development of lower-level skills such as grammar and punctuation. Just as fluent reading requires that lower-level word identification skills become automatic, proficiency in writing requires that lower-level mechanical skills become automatic.

Is Inner Speech Important for Reading Comprehension?

There has been considerable controversy on the exact nature and role of inner speech in the reading process (McCusker, Bias, & Hillinger, 1981). It has been argued that inner speech refers to two different phenomena, subvocalization and phonological coding (Rayner & Pollatsek, 1989). Subvocalization refers to the activity in the vocal tract, that is, muscle or articulatory movements. Phonological coding refers to the mental representations of speech (i.e., auditory images). Phonological coding is also known as speech recoding, phonological recoding, phonemic recoding, and deep phonemic recoding (see discussion in Rayner

& Pollatsek, 1989). This refers to the conversion of printed symbols to sounds in order to access meaning. Because of the difficulty in determining the relationship between subvocalization and phonological coding, inner speech or speech coding is used here to refer to both aspects. It is possible, however, that subvocalization might be the main source of speech coding or it might make this coding easier.

There is increasing evidence that speech coding is important for reading comprehension. Speech coding may be important for accessing the meaning of words. However, there is some agreement that lexical access can proceed via a visual route or a phonological route and that phonological access of a word is not obligatory (see reviews in Just & Carpenter, 1987; Rayner & Pollatsek, 1989). The evidence is stronger for remembering phrases and sentences for both hearing and hearing-impaired subjects (Lichtenstein, 1984, 1985; see review in Paul & Quigley, 1990). That is, speech coding aids higher-order comprehension processes in reading. After lexical access, there seems to be speech representation of the words formed in short-term, or working, memory and this assists in the processing of phrases, clauses, sentences, and other larger units.

On the basis of short-term memory studies, it can be concluded that most severely to profoundly hearing-impaired students use predominantly a combination of nonspeech codes such as sign (most commonly used), finger spelling, or print.

Some students do use a speech code, and they are better readers than students who primarily use nonspeech codes (see discussions in Conrad, 1979; Lichtenstein, 1984, 1985). In addition, speech coding is not only important for first language reading, but also it is important for second language reading (see discussion in Bernhardt, in press).

Summary: Interactive Theories

Based on research motivated by interactive theories of literacy, it is possible to infer that (Anderson, Hiebert, Scott, & Wilkinson, 1985):

1. Adequate English language and social-cultural skills are important for comprehending and composing English texts.
2. Phonological coding (inner speech) is important for comprehension and composition.
3. The coordination of both bottom-up and top-down skills is necessary for developing high levels of proficiency in reading and writing.

The establishment of a successful bilingual program is dependent, in part, on the implementation of the research findings concerning the development of literacy skills. It is also important for the teacher to teach the skills listed above to deaf students.

What Role Can ASL Play in Teaching Literacy Skills?

It is recommended that American Sign Language be used to teach English literacy skills within the framework of a

bilingual minority-language immersion program. This program also has one or two English components designed to develop the primary forms (i.e. speech or signing skills) and secondary forms (i.e., reading and writing) (additional details on the proposed program can be found in Paul, 1990; Paul & Quigley, 1987). Keeping in mind the major principles of interactive theories of literacy, the following objectives are important in the initial stages of the program:

1. To develop grammatical and communicative competence in ASL.
2. To use ASL to teach academic subjects or areas and assess knowledge of these areas.
3. To use ASL to present the socio-political culture of the students' home environment and the socio-political culture of mainstream society.
4. To begin emerging literacy activities through the use of ASL, finger spelling, and oral communication components (speech, speech reading, and auditory training).

Development of ASL and Culture Components

American Sign Language is used as the major mode of instruction and communication for at least three school years. The nature of American Sign Language requires that educational lessons be designed to fit the needs and capabilities of the eye. A number of resources can be used to

enhance the development and maintenance of ASL and the transmission of concepts from cultures and the school curriculum. During these lessons, finger spelling should be used in a manner similar to the way in which it is used by ASL-signers. The major focus of instruction should be on items 1, 2, and 3 above. For example, some activities should further students' understanding of the structure and use of ASL and to help them in learning to perform certain cognitive tasks such as following directions, answering questions, solving problems, and making inferences (see Paul & Quigley, 1987 for additional details).

American Sign Language may be used to teach the major concepts associated with the culture of the student's home environment. In general, students from ASL-using homes should be exposed to the knowledge, values, attitudes, and beliefs of the Deaf culture. Students from other home environments should be exposed to their respective culture, that is, English, Spanish, and so on. For these students, exposure to the Deaf culture is a complex issue that needs to take into consideration the desires of students and parents. ASL may be used as a communication tool only, especially if these students have not developed a reasonable bona fide language by the time they start school or within a few years after starting school.

Emerging Literacy Skills

After grammatical and communicative competence are

acquired, ASL can be used to teach the content of various academic subjects associated with preschool and early elementary grades. Through the use of ASL, students can obtain access to the school curriculum and to the socio-cultural values, beliefs, and attitudes of mainstream society that are necessary for developing literacy skills. The purpose of most of these activities is to develop beginning socio-cultural and top-down cognitive skills such as prior knowledge and metacognition (i.e., reading strategies for monitoring comprehension).

To develop beginning bottom-up skills, including the use of a phonological coding strategy, it is important to add one or two English instructional components to the bilingual program (Paul, 1990). One component should emphasize the development of speech, speech reading, and auditory training (i.e., oral communication skills). For example, ASL may be used to explain the lessons and finger spelling may be used to relate letters and letter clusters to speech sounds in a visual manner. Students' participation in the oral-communication component may vary according to their abilities. It is necessary to encourage as much participation as possible given the importance of inner speech to higher-level comprehension and composition skills (e.g., Rayner & Pollatsek, 1989).

The oral communication activities should reinforce or be related to beginning literacy activities, another

instructional component. Again, ASL can be used to instruct students in these areas. The use of oral communication or finger spelling to help students develop rapid word identification skills may also be necessary.

There are many beginning literacy activities. For example, one of the most basic aspects of beginning reading is print awareness. The elements of print awareness are as follows (Durkin, 1989):

Students need to know:

1. Words exist in a written as well as a spoken form.
2. Difference between a graphic display that is a word and one that is not.
3. The difference between a letter and a word.
4. The empty space marks the end of one word and the beginning of the next.
5. Words (in English) are read in a left-to-right direction.
6. That lines of text are read from top to bottom.
7. That, like spoken language, written words make sense.

A second major aspect of beginning reading is the understanding of metalinguistic terms such as word, letter, sentence, beginning of a word, and beginning sound in a word. As is true with print awareness and other reading-related activities, it is more effective to teach metalinguistic terms by providing students with a number of experiences in which the terms are used and illustrated. Using definitions or

presenting the terms in one lesson is insufficient.

The use of students' names, parts of calendars, even terms associated with the weather may provide numerous opportunities not only for students to talk about what interests them but also for teachers to initiate literacy. Instructional objectives can be related to names of letters, capitalization, word identification, spacing between words, printing, alphabetical order, auditory and visual discrimination of letters and words, and letter-sound correspondences.

Books can also be used to teach print awareness and metalinguistic terms. Durkin (1989) recommends the following:

1. Books with few words on a page, preferably printed in large type.
2. Alphabet books that can give meaning to terms like letter, word, and beginning of a word.
3. Reading (and showing) stories told with one or two sentences per page. This can clarify the meaning of a word and show how empty space defines word boundaries--that is, where one words ends and the next begins.
4. Reading pictureless text is useful in helping students understand that reading is not a matter of holding a book, looking at pictures, and saying whatever comes to mind. Instead, it is directly controlled by the words on a page.

It is important to emphasize that individual words should

be taught, that is, displayed, named, discussed, renamed, especially in word identification activities such as whole word, phonics, and structural analyses (Adams, 1990; Anderson et al., 1985; Durkin, 1989). Only words that are known at the level of automaticity--that is, can be read without thinking--facilitate comprehension. It is recommended that students know 90 to 95% of words used in reading materials to ensure successful development of reading. This is critical because the ability to name words quickly allows readers to allot most of their attention to meaning.

Beginning readers, including deaf readers, need to be taught contextual analysis skills that focus on comprehending and using syntax and semantics. As mentioned previously, a working knowledge of the English language is essential for developing literacy skills.

A well-developed beginning literacy program includes the following activities (Adams, 1990, p. 124-125):

> Activities designed to develop young children's awareness of words, syllables, and phonemes significantly increase their later success in learning to read and write. The impact of phonemic training on reading acquisition is especially strong when phonemes are taught together with the letters by which they are represented. Early encouragement of printing is both a way of developing letter recognition skills and of enabling children to write independently.

There is no one best method for teaching beginning literacy skills. Probably, the most efficient approach is to use an eclectic methodology that operates within planned, systematic, imaginative instruction. A beginning literacy program should enable students to develop the ability to identify written words automatically and to understand their meaning in a given context, to work out the meaning of unknown root words, derived words, and inflected words with the help of their spelling and structure and to use the context of a sentence to figure out the meanings of words (Adams, 1990; Anderson et al., 1985; Durkin, 1989; Mason & Au, 1986). In addition, students need to receive instruction on making semantic connections between the parts of a sentence and across separate sentences (e.g., understanding syntax, pronouns). They should also be asked comprehension questions that encourage them to make text-based and reader-based inferences.

To accomplish the tasks above, students should read and be exposed to a variety of reading materials. However, as stated by Paul & Quigley (1987):

> ... it is of benefit to the ASL-using deaf students if the materials present information in a spiraling or cyclical pattern. That is, structures and content are sequenced according to level of difficulty, ranging from simple to complex. In addition, all structures are reinforced ... repeatedly throughout the curriculum. This is necessary for beginning readers who do not have adequate control of standard English.

Is the Use of Only ASL Sufficient for Developing Reading and Writing Skills?

This question is motivated by approaches that focus on teaching English literacy skills via the use of American Sign Language and print only. These approaches have some merit; however, as discussed previously, teaching high-level English literacy skills is dependent on the development of adequate English language and socio-cultural skills. Deaf students need to be exposed to direct teaching and incidental usages of English (e.g., instruction in academic subjects). There is no compelling evidence that first- or second-language learners achieve high levels of literacy through exposure to and instruction in the written form only of the target language (Bernhardt, in press). Thus, in addition to a working knowledge of ASL, deaf students need to achieve a level of competence in a primary form (e.g., speaking, signing, finger spelling) of English that permits them, for example, to access printed words at a rapid automatic pace.

Advanced Literacy Skills

The second major phase of the minority-language immersion program discussed previously includes the formal development of advanced English literacy skills as well as knowledge of the school curricular and socio-cultural aspects of mainstream society. By this time, it is assumed that deaf students have acquired adequate word identification skills and can comprehend beginning literacy materials. (Note: A decision

can be made on the benefits of continuing oral communication training.) American Sign Language can be used as an instructional tool to develop vocabulary knowledge and higher-level comprehension skills, which are critical for achieving a high literacy achievement level. The teacher should also play a major role by teaching these skills. It is important to highlight some major points regarding the teaching of vocabulary and comprehension and the involvement of the teacher, particularly in relation to the development of reading.

Vocabulary

Vocabulary instruction needs to move away from what is called the definition-and-sentence approach to a conceptual or semantic elaboration approach (Paul, 1989; Paul & O'Rourke, 1988; Pearson, 1984). Traditionally, the instructional focus has been on what a word means and how it is used in a sentence. Instead, attention should be given to the entire conceptual framework elicited by the word. Teachers should help students acquire new words and concepts and a deeper knowledge of old words and concepts by bridging the unknown and known information within this framework. Techniques for helping students relate what they know about words to what they do not know are word and semantic maps, semantic feature analyses, and other forms of semantic elaboration (for further details, see Heimlich & Pittelman, 1986). As stated by Pearson (1984, p. 16), instead of asking, "What is it that children do not know and how can I get that into their

heads?" We should ask, "What is it that children do know that is enough like the new concepts so that I can use it as an anchor point?"

Comprehension

Comprehension is the most important goal of reading. No text is ever completely explicit; that is, no text specifies all relationships among characters and events, or explains everything in detail. In short, no text defines comprehension. Thus, the student needs to play an active constructive role and build a model of what the text means, typically inferring a great deal of information.

The crux is that teachers should be aware of reader-based factors that affect comprehension. Reader-based factors include the application of prior knowledge, metacognitive, and inferential skills. Teachers may need to develop prereading questions that build background for story comprehension. These questions should require students to make inferences and predictions and to understand what they know or do not know about specific topics. Much of the postreading activities should also focus on questions, especially inferential questions. Readers should also be asked comparison questions and to apply what they have read to other situations and stories. In short, reading is thinking, inferring, analyzing, predicting, and comparing information.

Role of Teacher

That teachers should play an active role in providing instruction in reading cannot be emphasized enough. This role involves more than following the guidelines and instructions in the teacher's guide. It involves more than directing students to read the story, asking and providing answers to questions, and then requiring students to do workbook activities for reinforcement. Like the student's text, the teacher's guide is not and cannot be explicit. Teachers need to read stories and build their models of what they mean. This provides the basis for constructing important prereading questions and activities to enrich and activate the prior knowledge of students. By being active participants, teachers understand what is needed to help students develop comprehension skills. Students need to learn how to make inferences, where to find an answer to a question, and how to find out what they do know and how to apply this information to what they do not know. In short, teachers should teach, model, and provide feedback on comprehension skills. This may require a substantial amount of time to be spent on the construction of prereading and postreading activities.

Conclusion

The effects of using American Sign Language as an instructional tool in teaching English literacy skills have not been extensively studied. One major reason for this situation may be that ASL is not widely accepted as part of

the Total Communication philosophy. There are also other practical reasons. However, based on research findings in bilingualism and second-language learning, a strong case can be made for establishing a bilingual education program for deaf students whose home language is ASL. The use of ASL as an instructional tool should also be considered for deaf students who are members of other minority cultures or who do not have a first language by the time they start school or within a few years after enrollment.

It is recommended that ASL be used within a bilingual minority-language immersion program with one or two English components. This type of program may be most beneficial for developing and maintaining American Sign Language and for developing English literacy skills. It is strongly recommended that the literacy segment of this program adhere to the salient principles of interactive theories of literacy. This means that both rapid word identification skills and higher-level comprehension skills need to be taught and enhanced. Although the use of phonics and structural analysis are extremely important for developing word identification skills, the extensive use of structural analysis may be beneficial, particularly for those deaf students who may not gain much from phonic analysis. An unresolved issue for theorists and educators is how deaf students can comprehend phrases, sentences, and other larger units with limited or no access to the phonological code,

which has been shown to be important for reading comprehension. Perhaps the use of structural analysis, that is, focusing on spelling and meaning of words and word parts, can be a reasonable symbol substitute.

References

Adams, M. (1990). Beginning to read: Thinking and learning about print. A summary. Prepared by S. Stahl, J. Osborn, & F. Lehr. Urbana-Champaign, IL: University of Illinois, Center for the Study of Reading, The Reading Research and Education Center.

Anderson, R., Hiebert, E., Scott, J., & Wilkinson, I. (1985). Becoming a nation of readers: The report of the commission on reading. Washington, DC: U.S. Department of Education, The National Institute of Education.

Anderson, R., & Pearson, P.D. (1984). A schema-theoretic view of basic processes reading comprehension. In P.D. Pearson, R. Barr, M. Kamil, & P. Mosenthal (Eds.), Handbook of reading research (pp. 255-291). White Plains, NY: Longman.

Bernhardt, E. (in press). Reading development in a second language. Norwood, NJ: Ablex.

Berman, R. (1984). Syntactic components of the foreign language reading process. In J. Alderson & A. Urquhart (Eds.), Reading in a foreign language (pp. 139-159). White Plains, NY: Longman.

Bloom, D., & Green, J. (1984). Directions in the sociolinguistic study of reading. In P.D. Pearson, R. Barr, M. Kamil, & P. Mosenthal (Eds.), Handbook of reading research (pp. 395-421). White Plains, NY: Longman.

Carrell, P. (1983). Three components of background knowledge in reading comprehension. Language Learning, 33, 183-208.

Carrell, P. (1984a). Inferencing in ESL: Presuppositions and implications of factive and implicative predicates. Language Learning, 34, 1-21.

Carrell, P. (1984b). Evidence of a formal schema in second language comprehension. Language Learning, 34, 87-112.

Cicourel, A., & Boese, R. (1972a). Sign language acquisition and the teaching of deaf children, Part I. American Annals of the Deaf, 117, 27-33.

Cicourel, A., & Boese, R. (1972b). Sign language acquisition--Conclusion. American Annals of the Deaf, 117, 403-411.

Cohen, A., Glasman, H., Rosenbaum, P., Ferrara, J., & Fine, J. (1979). Reading English for specialized purposes: Discourse analysis and the use of students. TESOL Quarterly, 13, 551-564.

Collins, A., Brown, J., & Larkin, K. (1980). Inference in text understanding. In R. Spiro, B. Bruce, & W. Brewer (Eds.), Theoretical issues in reading comprehension (pp. 385-407). Hillsdale, NJ: Erlbaum.

Conrad, R. (1979). The deaf school child. London, England: Harper & Row.

Duffy, G., Roehler, L., & Mason, J. (1984). Comprehension instruction: Perspectives and suggestions. White Plains, NY: Longman.

Durkin, D. (1989). Teaching them to read (5th ed.). Boston, MA: Allyn & Bacon.

Goodman, K. (1985). Unity in reading. In H. Singer & R. Ruddell (Eds.), Theoretical models and processes of reading (3rd ed.) (pp. 813-840). Newark, DE: International Reading Association.

Grabe, W. (1988). Reassessing the term "interactive." In P. Carrell, J. Devine, & D. Eskey (Eds.), Interactive approaches to second language reading (pp. 56-70). New York, NY: Cambridge University Press.

Heimlich, J., & Pittelman, S. (1986). Semantic mapping: Classroom applications. Newark, DE: International Reading Association.

Johnson, R., Liddell, S., & Erting, C. (1989). Unlocking the curriculum: Principles for achieving access in deaf education (Working Paper 89-3). Washington, DC: Gallaudet University, Gallaudet Research Institute.

Just, M., & Carpenter, P. (1987). The psychology of reading and language comprehension. Boston, MA: Allyn & Bacon.

King, C., & Quigley, S. (1985). Reading and deafness. San Diego, CA: College-Hill.

Lichtenstein, E. (1984). Deaf working memory processes and English language skills. In D. Martin (Ed.), International symposium on cognition, education, and deafness: Working papers (Vol. 2) (pp. 331-360). Washington, DC: Gallaudet University Press.

Lichtenstein, E. (1985). Deaf working memory processes and English language skills. In D. Martin (Ed.), Cognition, Education, and Deafness: Directions for research and instruction (pp. 111-114). Washington, DC: Gallaudet University Press.

Luetke-Stahman, B. (1983). Using bilingual instructional models in teaching hearing-impaired students. American Annals of the Deaf, 128, 873-877.

Mason, J., & Au, K. (1986). Reading instruction for today. Glenview, IL: Scott, Foresman.

Mason, J., and the staff of the Center for the Study of Reading. (1984). A schema-theoretic view of the reading process as a basis for comprehension instruction. In G. Duffy, L. Roehler, & J. Mason, (1984). (Eds.), Comprehension instruction: Perspectives and suggestions (pp. 26-38). White Plains, NY: Longman.

McCusker, L., Bias, R., & Hillinger, M. (1981). Phonological recoding and reading. Psychological Bulletin, 89, 217-245.

McLaughlin, B. (1982). Second-language learning and bilingualism in children and adults. In S. Rosenberg (Ed.), Handbook of applied psycholinguistics (pp. 217-256). Hillsdale, NJ: Erlbaum.

Paul, P. (1987). Perspective on using American Sign Language to teach English as a second language. Teaching English to Deaf and Second Language Students (TEDSL), 5(3), 10-16.

Paul, P. (1989). Depth of vocabulary knowledge and reading comprehension: Implications for hearing-impaired and learning-disabled students. Academic Therapy, 25, 13-24.

Paul, P. (1990). Using ASL to teach English literacy skills. Submitted to Deaf American (invited article).

Paul, P., & Gramly, C. (1986). Is reading in L1 really necessary for reading in L2, especially when L1 has no written form? A perspective on ASL and English. Based on a paper presented at the Delaware Symposium on Language Studies, VIII, University of Delaware, Department of Linguistics, Newark, Delaware, October, 1986. (ERIC Document Reproduction Service No. 285 320).

Paul, P., & O'Rourke, J. (1988). Multimeaning words and reading comprehension: Implications for special education students. Remedial and Special Education (RASE), 9(3), 42-52.

Paul, P., & Quigley, S. (1987). Using American Sign Language to teach English. In P. McAnally, S. Rose, & S. Quigley, Language learning practices with deaf children (pp. 139-166). San Diego, CA: College-Hill.

Paul, P., & Quigley, S. (1990). Education and deafness. White Plains, NY: Longman.

Pearson, P.D. (1984). Reading comprehension instruction: Six necessary changes (Reading Educ. Rep. No. 54). Champaign, IL: University of Illinois, Center for the Study of Reading.

Quigley, S., & Paul, P. (1984). ASL and ESL? Topics in Early Childhood Special Education, 3(4), 17-26.

Quigley, S., & Paul, P. (1990). Language and deafness. San Diego, CA: College-Hill.

Rayner, K., & Pollatsek, A. (1989). The psychology of reading. Englewood Cliffs, NJ: Prentice Hall.

Reagan, T. (1985). The deaf as a linguistic minority: Educational considerations. Harvard Educational Review, 55, 265-277.

Rubin, R., & Hansen, J. (1986). Reading and writing: How are the first two R's related? In J. Orasanu (Ed.), Reading comprehension: From research to practice (pp. 163-170). Hillsdale, NJ: Erlbaum.

Samuels, S.J., & Kamil, M. (1984). Models of the reading process. In P.D. Pearson, R. Barr, M. Kamil, & P. Mosenthal (Eds.), Handbook of reading research (pp. 185-224). White Plains, NY: Longman.

Stokoe, Jr., W. (1975). The use of sign language in teaching English. American Annals of the Deaf, 120, 417-421.

Strong, M. (1988). A bilingual approach to the education of young deaf children: ASL and English. In M. Strong (Ed.), Language learning and deafness (pp. 113-129). New York, NY: Cambridge University Press.

Tierney, R., & Leys, M. (1984). What is the value of connecting reading and writing? (Reading Educ. Rep. No. 55). Champaign, IL: University of Illinois, Center for the Study of Reading.

Tierney, R., & Pearson, P.D. (1983). Toward a composing model of reading. Language Arts, 60, 568-580.

van Dijk, T., & Kintsch, W. (1983). Strategies of discourse comprehension. New York, NY: Academic Press.